

# Interagency Ecological Program for the San Francisco Estuary

Anke Mueller-Solger, IEP Lead Scientist, Delta Stewardship Council

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Interagency  
Ecological Program

COOPERATIVE ECOLOGICAL  
INVESTIGATIONS SINCE 1970

Previous IEP Presentation  
to the CA WQMC:  
7-27-2009

CA WQMC, 11 August 2010

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## Today:

1. Background and Some New Developments (this talk)
2. IEP Data Access (Rich Breuer)
3. Environmental Monitoring Program (Karen Gehrts)
4. Questions

# IEP and the CA WQM Council

= Theme-specific Workgroup?

= California Estuaries Portal  
focused on the SFE?

Home | Safe to Drink | Safe to Swim | Safe to Eat Fish | **Ecosystem Health** | Stressors & Processes | Contact Us

Estuaries | Lakes | Streams & Rivers | Ocean | Wetlands |

GOVERNOR SCHWARZENEGGER  
Visit his Website

Home >> Aquatic Ecosystem Health

State & Regional Water Boards

## Are Our Aquatic Ecosystems Healthy?

**WETLANDS**  
Wetlands form along the shallow margins of deepwater ecosystems such as lakes, estuaries, and rivers. They also form in upland settings where groundwater or runoff makes the ground too wet for upland

**ESTUARIES**  
Estuaries are unique habitats found where rivers and the ocean mix. They feature a diverse array of plants and animals adapted to life along the mixing zone. More>>

**LAKES**  
California lakes, supporting deep water, wetlands, riparian woodlands, offer a quiet refuge for plants, animals and humans alike. More>>

**AQUATIC HEALTH LINKS**

- Stressors
- Laws, Regulations & Standards
- Regulatory Activities
- Enforcement Actions
- Research
- Monitoring Programs, Data Sources & Reports

# 40 Years ago...

## Testimony at 1969-70 SWRCB Water Rights Hearings:

- “Fish and wildlife problems” in the estuary
- SWP & CVP may contribute

## Need studies to

- Understand fish and wildlife resource requirements
- Find ways to minimize SWP & CVP impacts

# 1970 MOA

IN WITNESS WHEREOF, the parties hereto have executed this Memorandum of Agreement on July 13, 1970.

<p>U. S. BUREAU OF RECLAMATION Region 2</p> <p>By <u><i>R.J. Pappas</i></u></p> <p>U. S. BUREAU OF SPORT FISHERIES AND WILDLIFE, Region 1</p> <p>By <u><i>John D. Findley</i></u> JOHN D. FINDLEY Regional Director</p>	<p>CALIF. DEPARTMENT OF WATER RESOURCES</p> <p>By <u><i>W. J. Conelli</i></u></p> <p>CALIF. DEPARTMENT OF FISH &amp; GAME</p> <p>By <u><i>[Signature]</i></u></p> <p>I hereby certify that all conditions for exemption set forth in State Administrative Manual Section 170.13 have been complied with and this document is exempt from review by the Department of Finance.</p> <p>By <u><i>[Signature]</i></u></p>
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Approved as to legal form and substance: *[Signature]*

**USBR**

**DWR**

**USFWS**

**DFG**

... **Now**



Interagency  
Ecological Program

COOPERATIVE ECOLOGICAL  
INVESTIGATIONS SINCE 1970

## 2010 IEP Annual Workshop - *40 Years of IEP*

- Directors Panel
- 45 Talks, 25 Posters
- 284 Registered Participants

Next year back in Asilomar!?



**2009**

Public IEP Workshop  
October 14 - 15, 2009

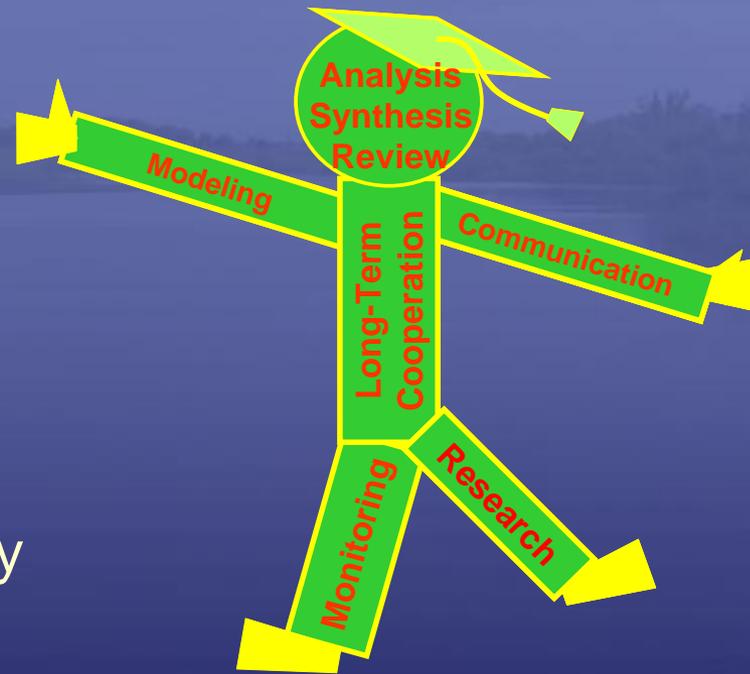
CALFED Bay-Delta Program, Delta Room  
660 Capitol Mall, 5th Floor, Sacramento

**Bay-Delta**  
Monitoring Questions  
and Tools  
for the **21st Century**

[Click here to read more ...](#)

# IEP Monitoring:

- Long-term
- Cooperative
- Consistent
- Mostly Mandated
  - SFE, Delta & Suisun focus
  - Mostly channels & bays
  - Continuous to semi-annually
  - *Variables:*
    - Fish
    - Jellyfish
    - Zooplankton
    - Benthos
    - Phytoplankton
    - Nutrients, D.O., pH, Turbidity
    - Salinity/EC, Temperature
    - Flow



## NOT:

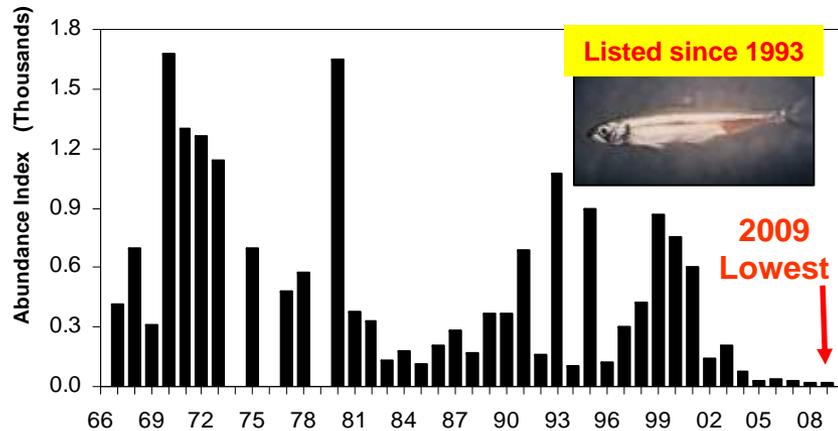
- Microbes\*
- Toxicity & Contaminants\*
- Wetlands
- Plants\*
- Vegetated Edges/Shore\*
- Fish Condition\*

\* Pilots with POD

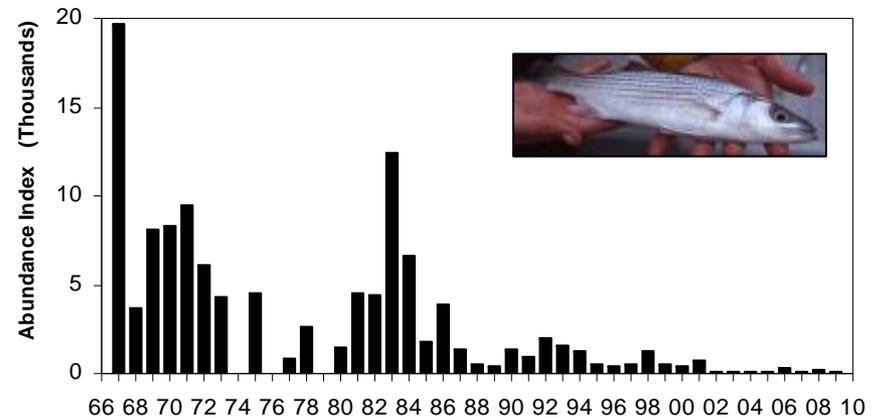
# Long-term IEP Monitoring Shows Fish Declines

## “Pelagic Organism Decline” (POD)

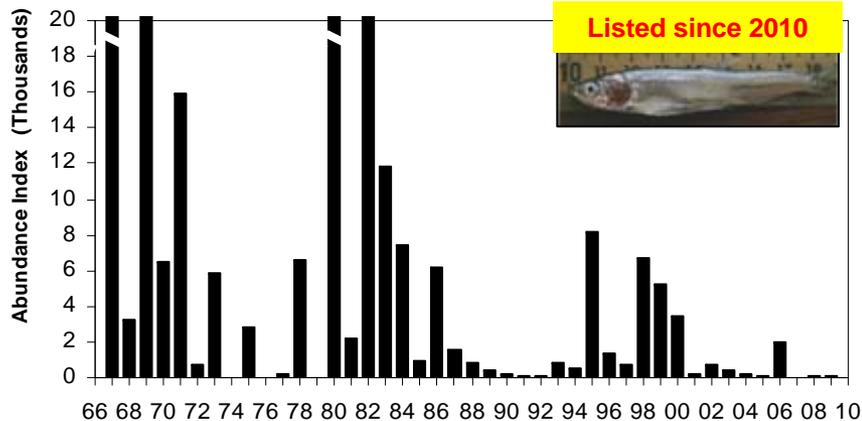
### Delta Smelt



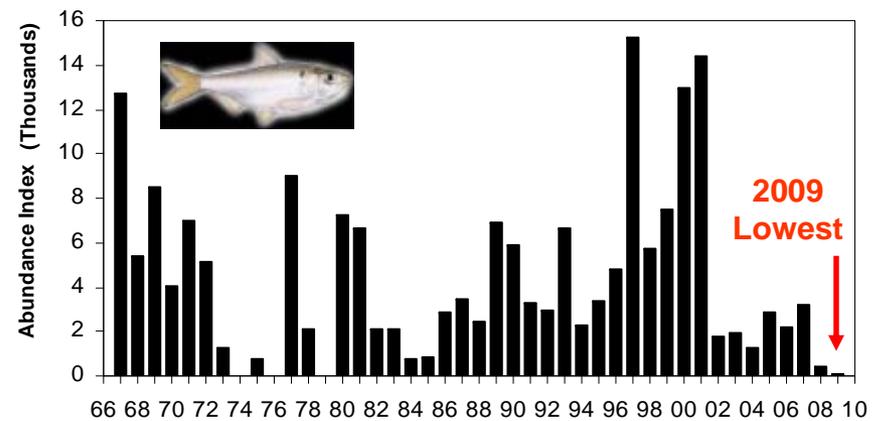
### Striped Bass



### Longfin Smelt

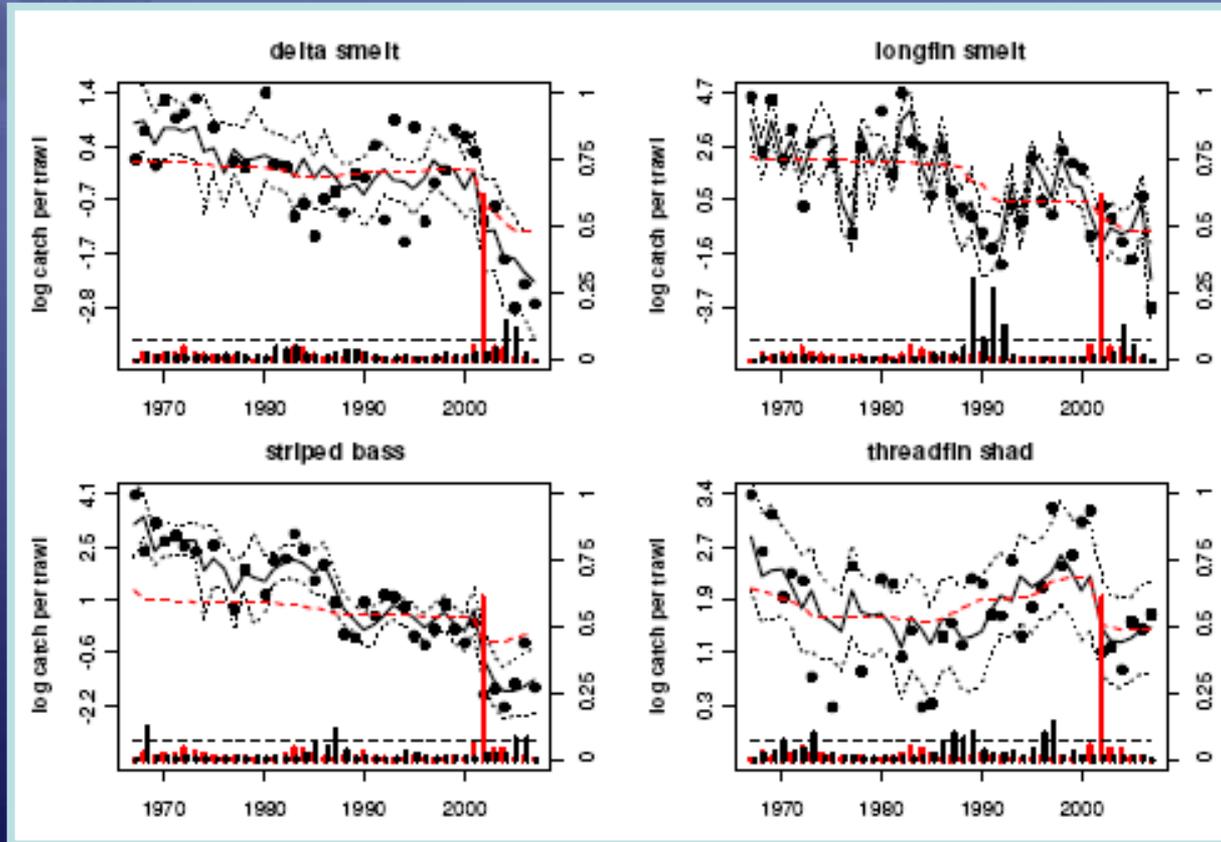


### Threadfin Shad



# Long-term IEP Monitoring Shows Fish Declines

## POD Change Point in 2002 - Thomson et al. 2010



National Center for Ecological  
Analysis and Synthesis

$$\frac{\partial \psi}{\partial t} + (\nabla^2 \phi) = \frac{\partial \psi}{\partial z} \frac{\partial \psi}{\partial x} + (\nabla^2 \psi) - \frac{\partial \psi}{\partial x} \frac{\partial \psi}{\partial z} + r \nabla^2 (\nabla^2 \psi) - \dots$$

2009

Public IEP Workshop  
September 8-9, 2009  
University of California Davis  
September 8: Wellman Hall, Basement, Room 2  
September 9: Memorial Union, 3rd Floor, Mee Room

**Modeling the  
Pelagic Organism  
Decline**

[Click here to read more...](#)

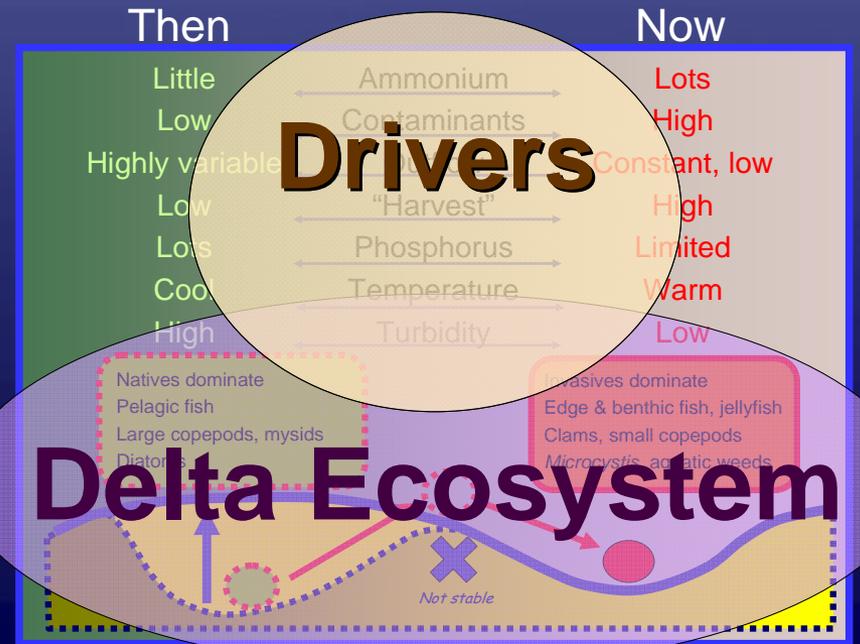
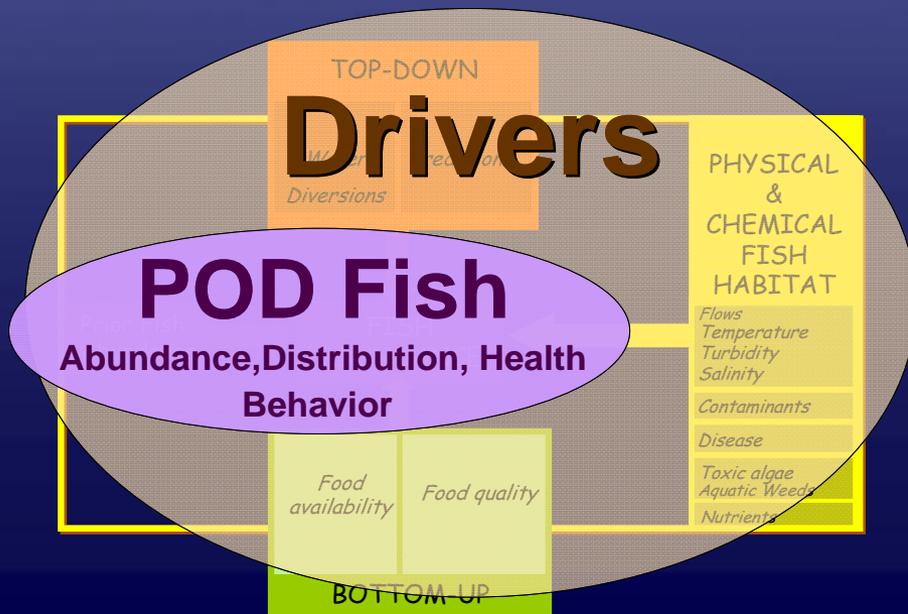
Ecological  
APPLICATIONS

# Current POD Research: Science Informing Solutions

## Focus on Multiple Drivers of Change

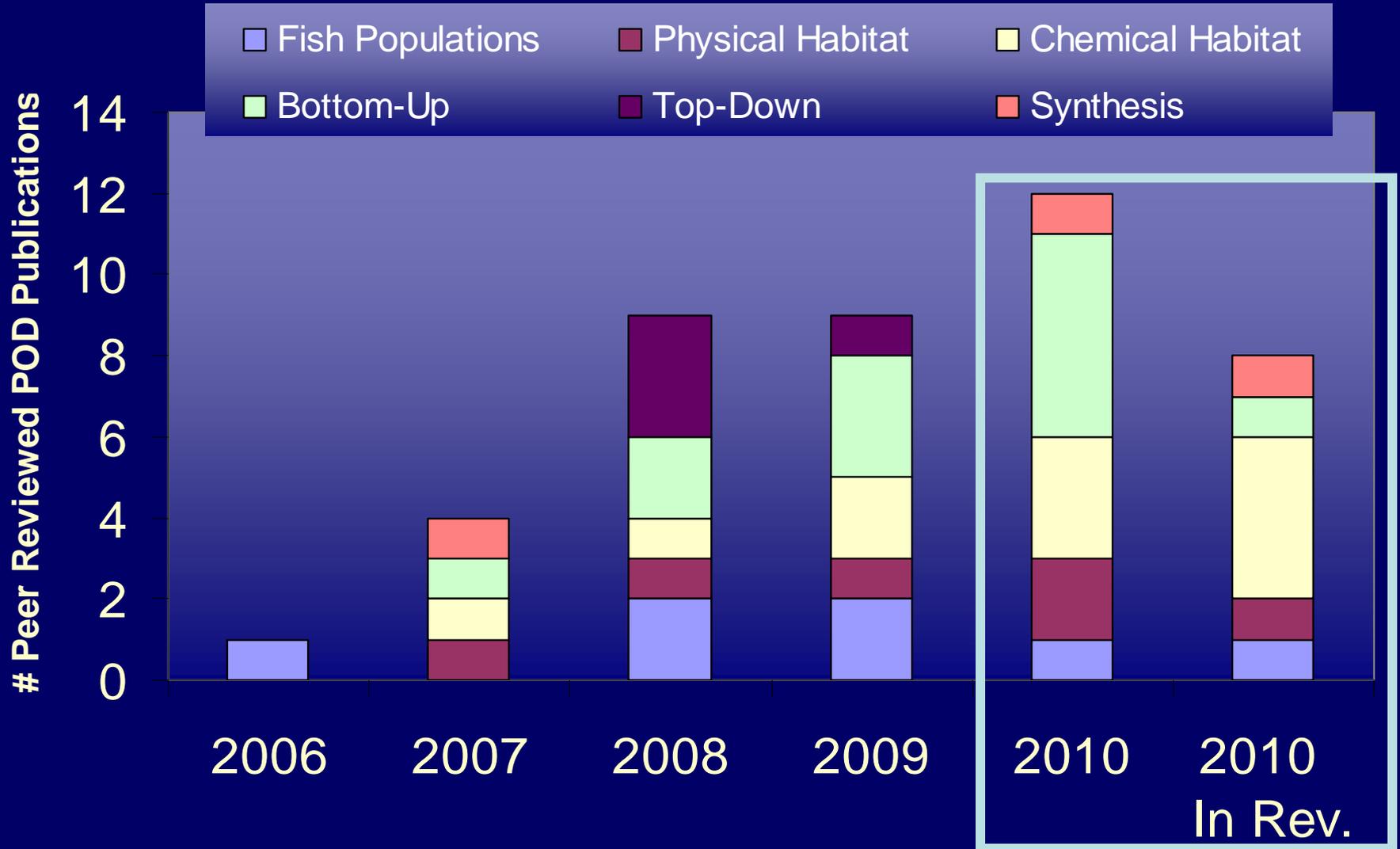
Old Conceptual Model:  
What happened to the fish?

New Conceptual Model:  
Ecological Regime Shift



# Products: POD Journal Publications

[http://www.science.calwater.ca.gov/pod/pod\\_publications.html](http://www.science.calwater.ca.gov/pod/pod_publications.html)



# Other Products: IEP Website

## www.water.ca.gov/iep

Interagency Ecological Prog...

## Interagency Ecological Program

Cooperative Ecological Investigations  
in the San Francisco Estuary since 1970

### 2010 IEP ANNUAL WORKSHOP

The 2010 IEP Workshop was held at CSU Sacramento on May 25 and 26, 2010. Anke Mueller-Solger, IEP Lead Scientist, is shown here with Agency Directors, moderating the session "Looking Forward Putting IEP into Perspective."  
(Monday, June 21, 2010)  
▶ [WORKSHOP AGENDA WITH LINKS TO PRESENTATIONS](#)

Please [click here](#) to take the IEP Data Users Survey

#### MONITORING

The annual "Status and Trends" issue of the IEP newsletter has been released.  
[Read More...](#)

#### RESEARCH

Old school vs. new school: status of threadfin shad (*Dorosoma petenense*) five decades after its introduction to the Sacramento-San Joaquin Delta.  
[Read More...](#)

#### WORKSHOPS AND EVENTS

Bay-Delta Science Conference  
[Conference](#)  
Sept. 27-29, 2010

#### IEP Home

#### ACTIVITIES

- Monitoring
- Research
- Pelagic Organism Decline (POD) Investigations
- Program Reviews
- Calendar
- Workshops and Events
- Archive

#### PRODUCTS

- Data and Metadata
- IEP Newsletter
- Technical Reports
- Journal Publications
- Maps
- Pictures

#### ABOUT

- About the Estuary
- About the IEP
- IEP Teams

# ... & into the Future

- 2010 MOU Renewal
- The Future of the IEP: Options for Adapting to New and Emerging Needs



## Improve Immediately:

- Data management and accessibility
- Analysis, synthesis, assessment, and communication
- Modeling

## Further consider:

- Geographic Scope
- BDCP Role
- Future Coordination Role

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# Thank You!

**“Planning for the future without a sense of history is like planting cut flowers.”**

*Daniel Boorstin*

*Historian and Librarian of Congress*